

Name

Asad Khan

ID No

14944

page 1

Qnbl
part q How would you be defining
a linked list?

Ans: A linked list is a list whose elements may not occupy continuous memory location.

or

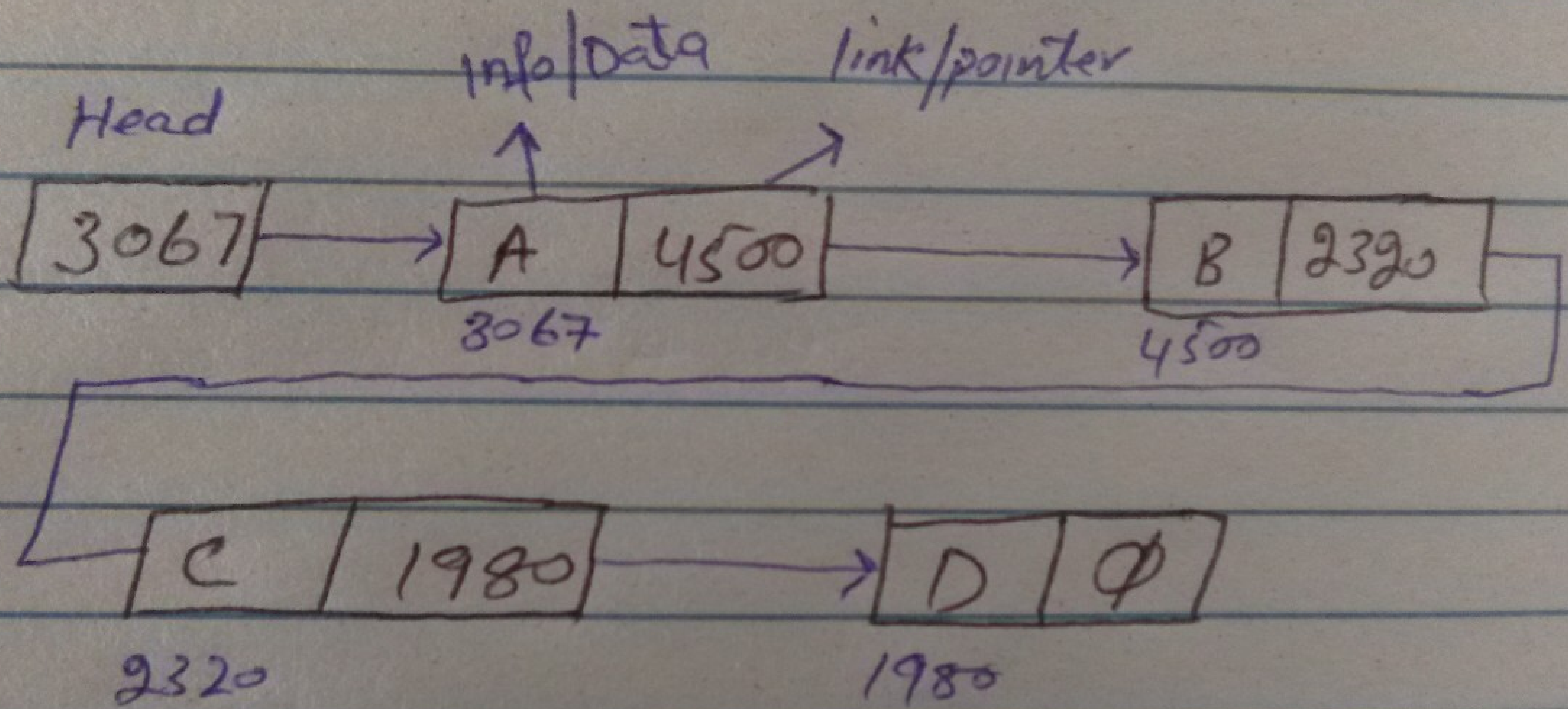
A linked is a linear data structure where each element is separate object. Each element (we will call it a node) of a list is comprising of two items. The data and a reference to the next node. The last node has a reference to null.

- Nodes are sequentially connected.

Name Asad Khan

ID 14944

Ques Diagrammatic one way linked List

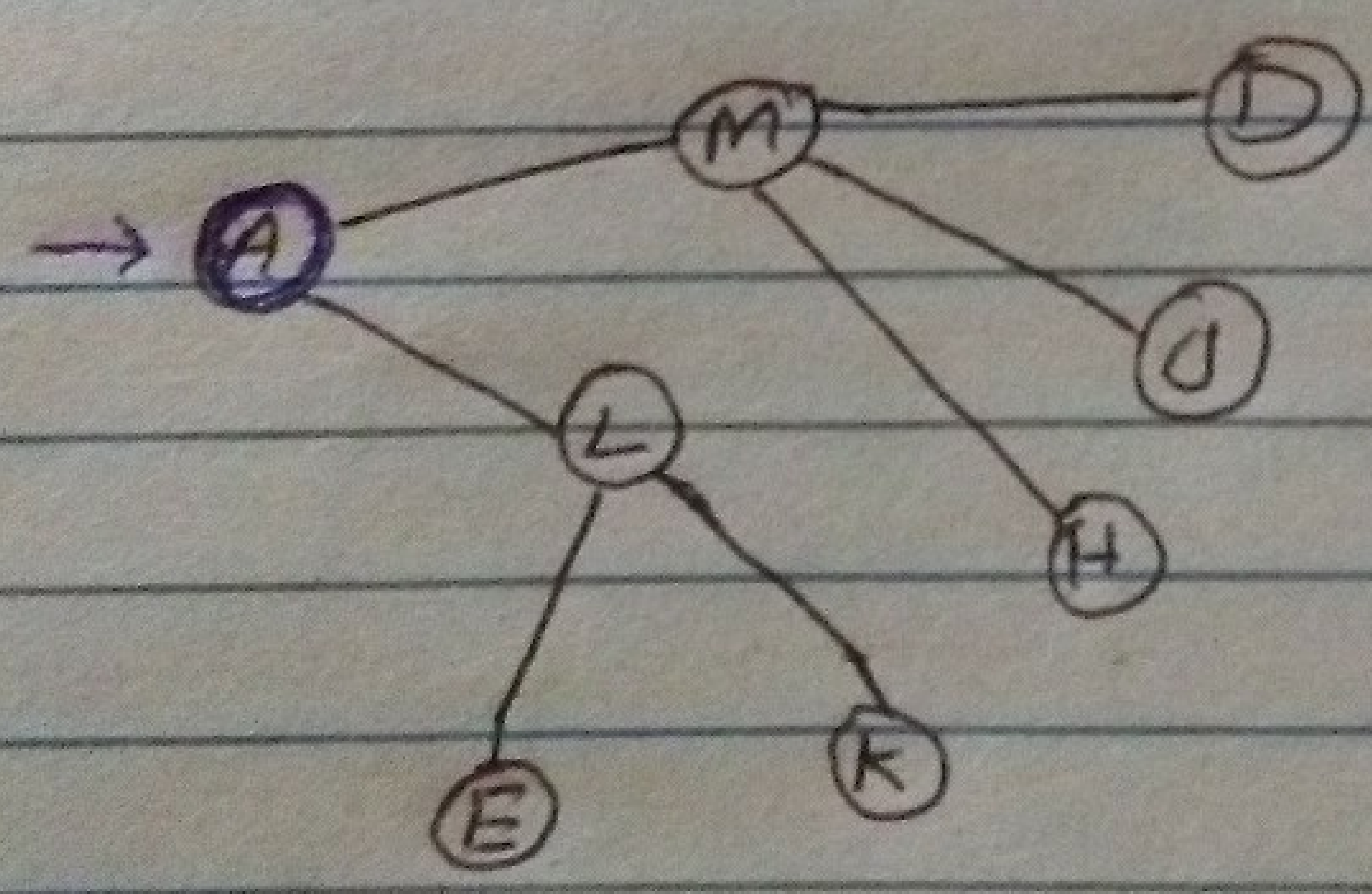


Name Asad Khan

ID 14944 page 3

Ques Depth first Techniques:

The basic idea is as follows: pick a starting node and push all its adjacent nodes into a stack pop a node from stack to select the next node to visit and push all its adjacent nodes into a stack. Repeat this process until the stack is empty.



- 1) Start from root node 'A' Highlight this node "A" Now push 'A' into stack.

Output Sequence

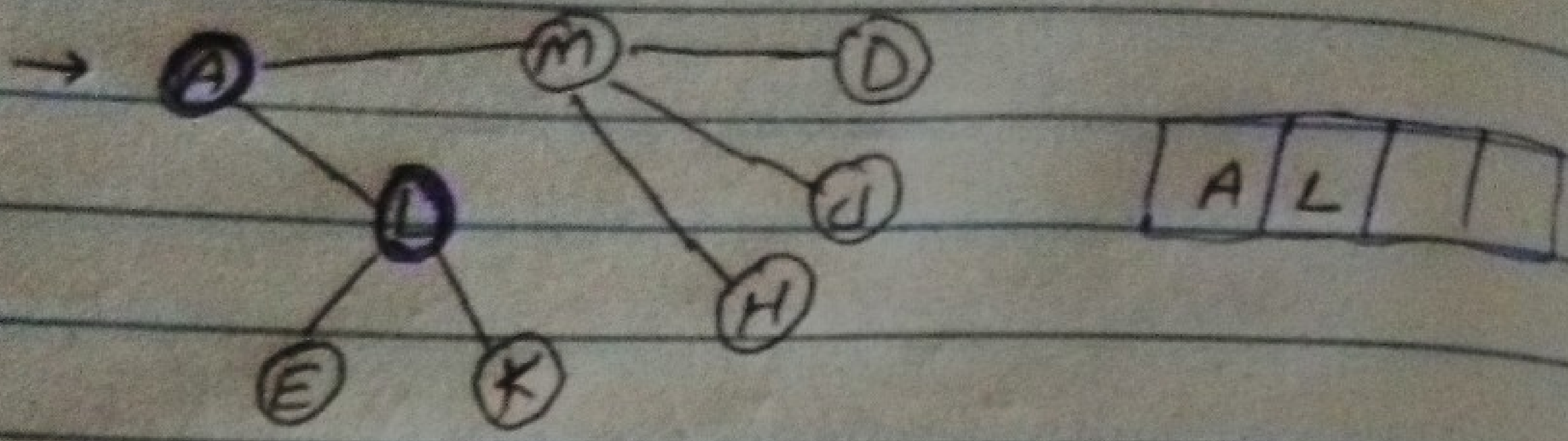


A,

Name Asad Khan

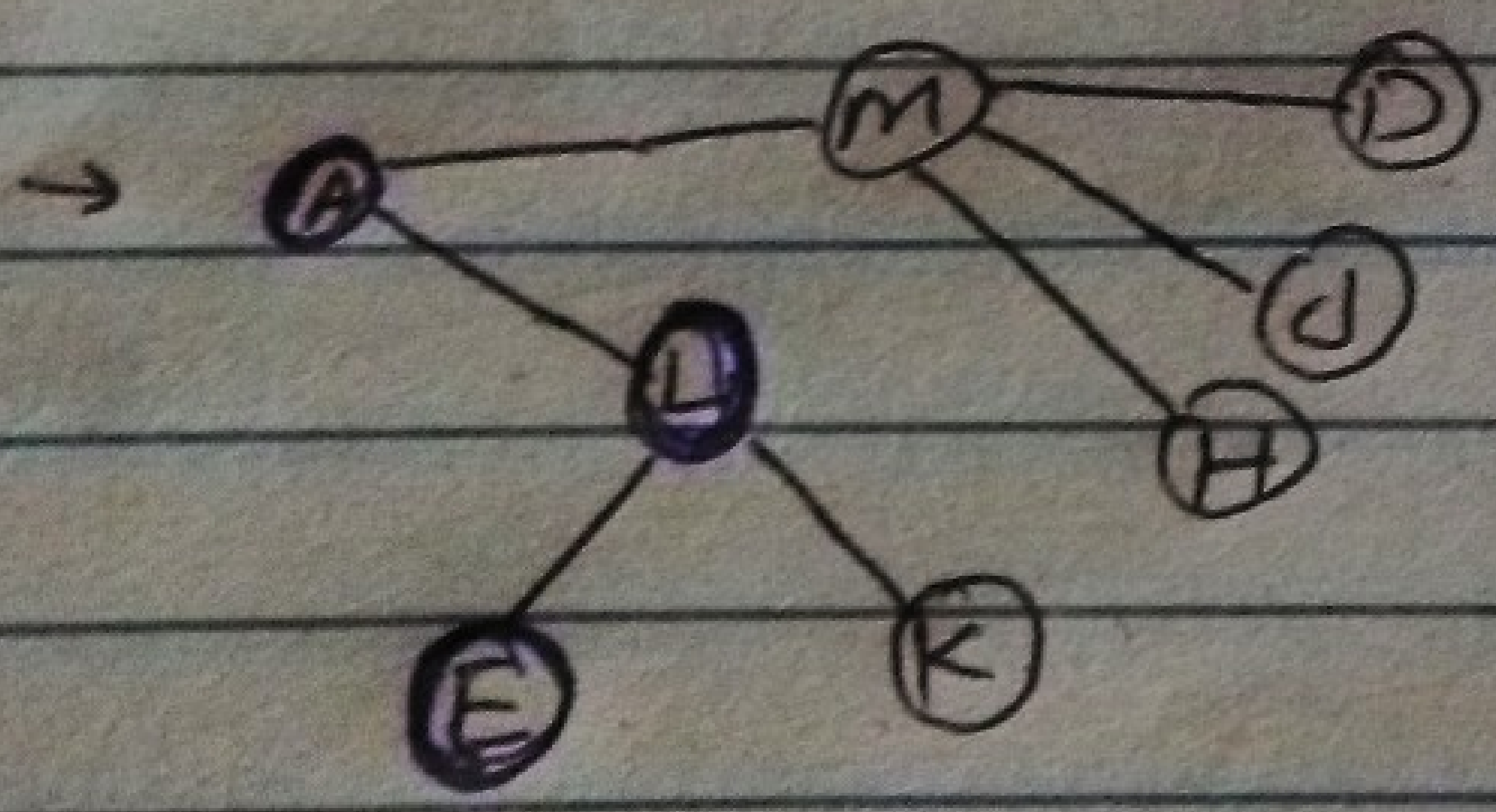
ID 14944

page 04



② Now "A" is adjacent to "M" and "L"
 follow to alphabetically we select "L"
 Highlight this node "L"
 Now we push "L" into the top
 of stack.

Output Sequence. A, L



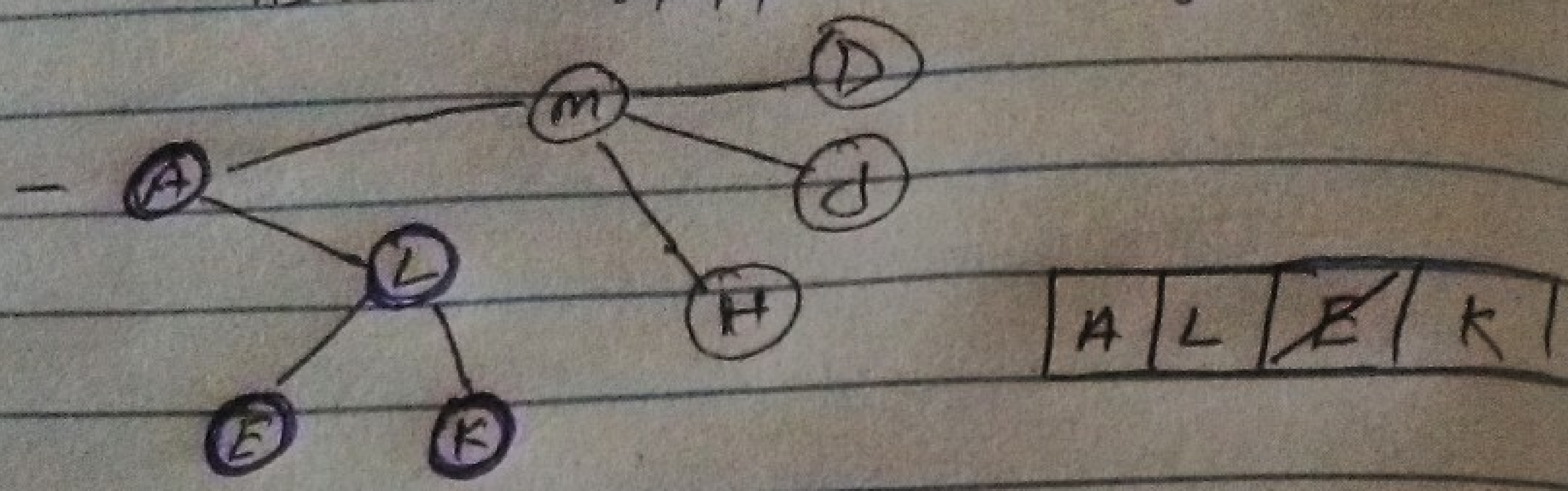
③ Now "L" is adjacent to "E" and "K"
 we select "E"
 Highlight this node "E"
 Now push E on the top of
 the stack.

Output Sequence.
A, L, E

Name Asad Khan

ID 14944

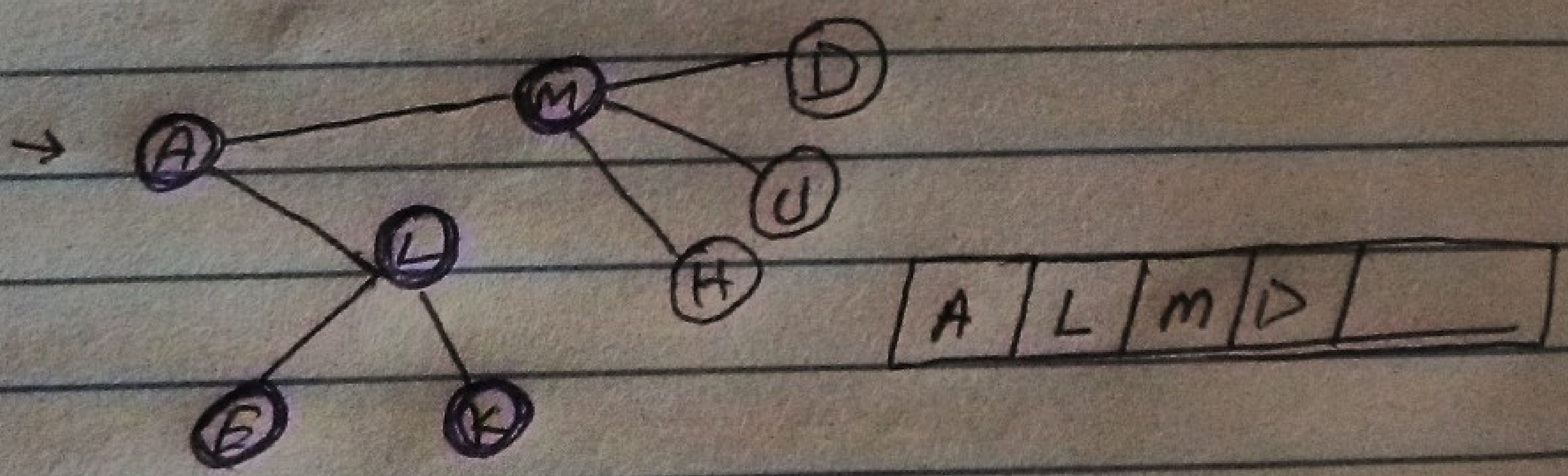
page 5



④ As 'E' is leaf so we pop it from stack.

we get back to "L"
now we push 'K' on top of the stack

Highlight node "K"
output sequence: A, L, E, K



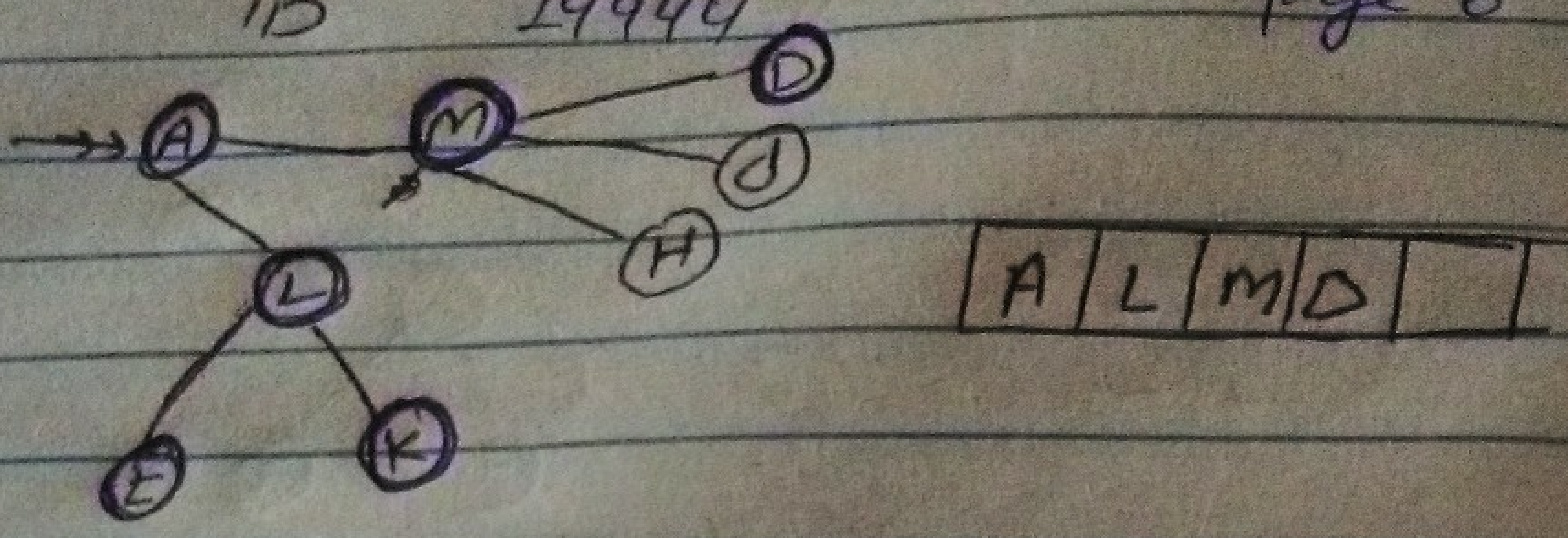
⑤ 'K' is also a leaf, so we pop it from stack

we get back to 'L' and 'L' has no other adjacent elements which we are pushed so we get back to 'A'

we push 'M' on top of the stack

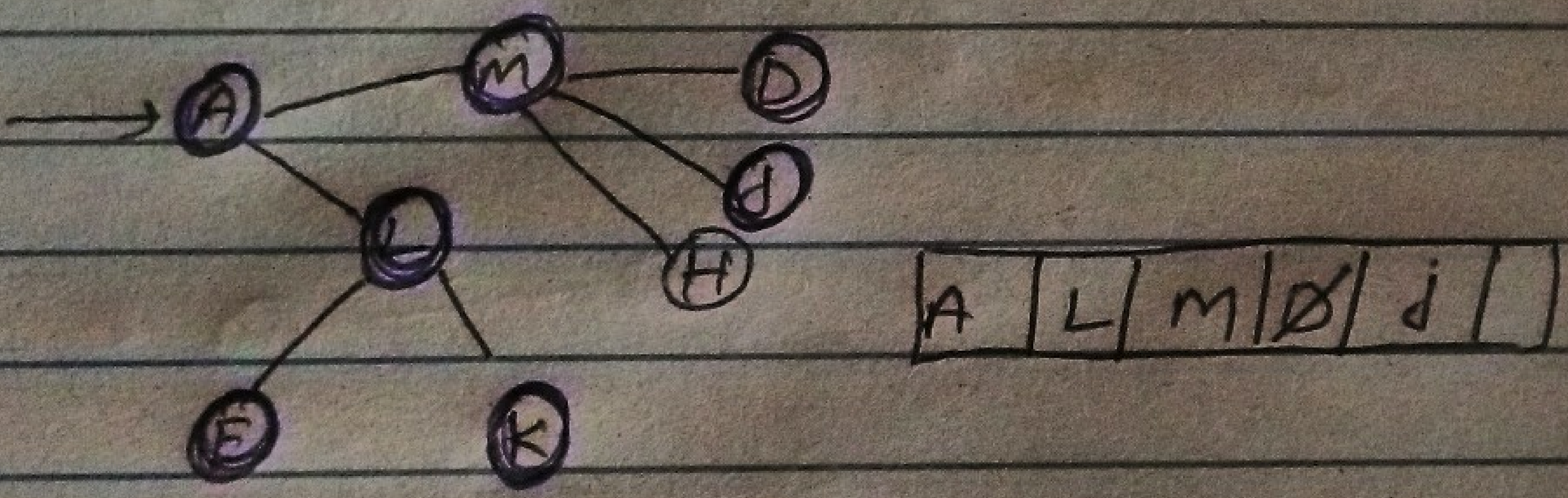
Highlight this node 'M'

output sequence: A, L, E, K, M,



⑥ 'M' is adjacent to D, j, and H
we select 'D'

we push 'D' on the top of the stack
Highlight this node 'D'
output Sequence A, L, E, K, M, D



⑦ As 'D' is leaf, so we pop it from stack.

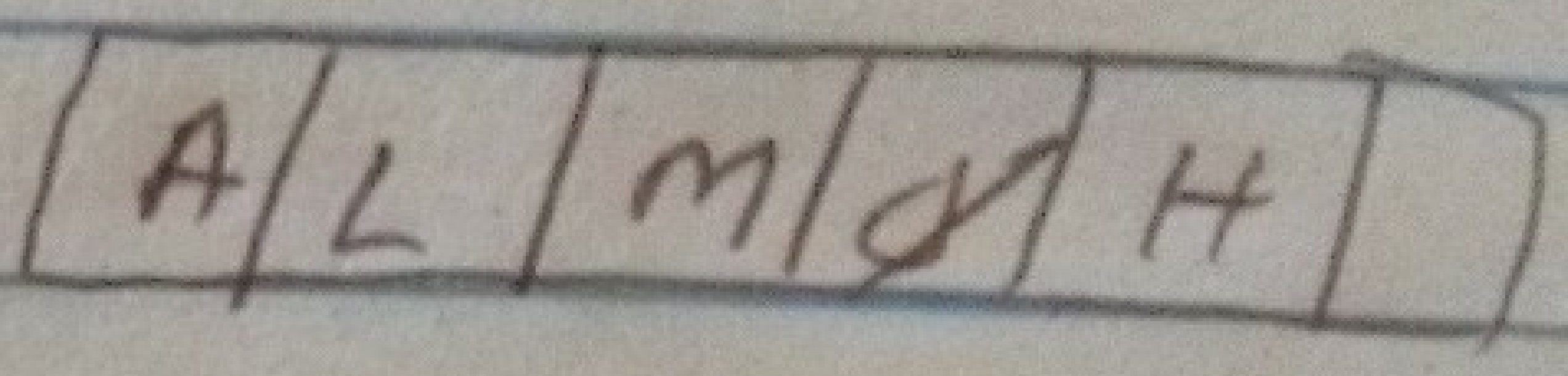
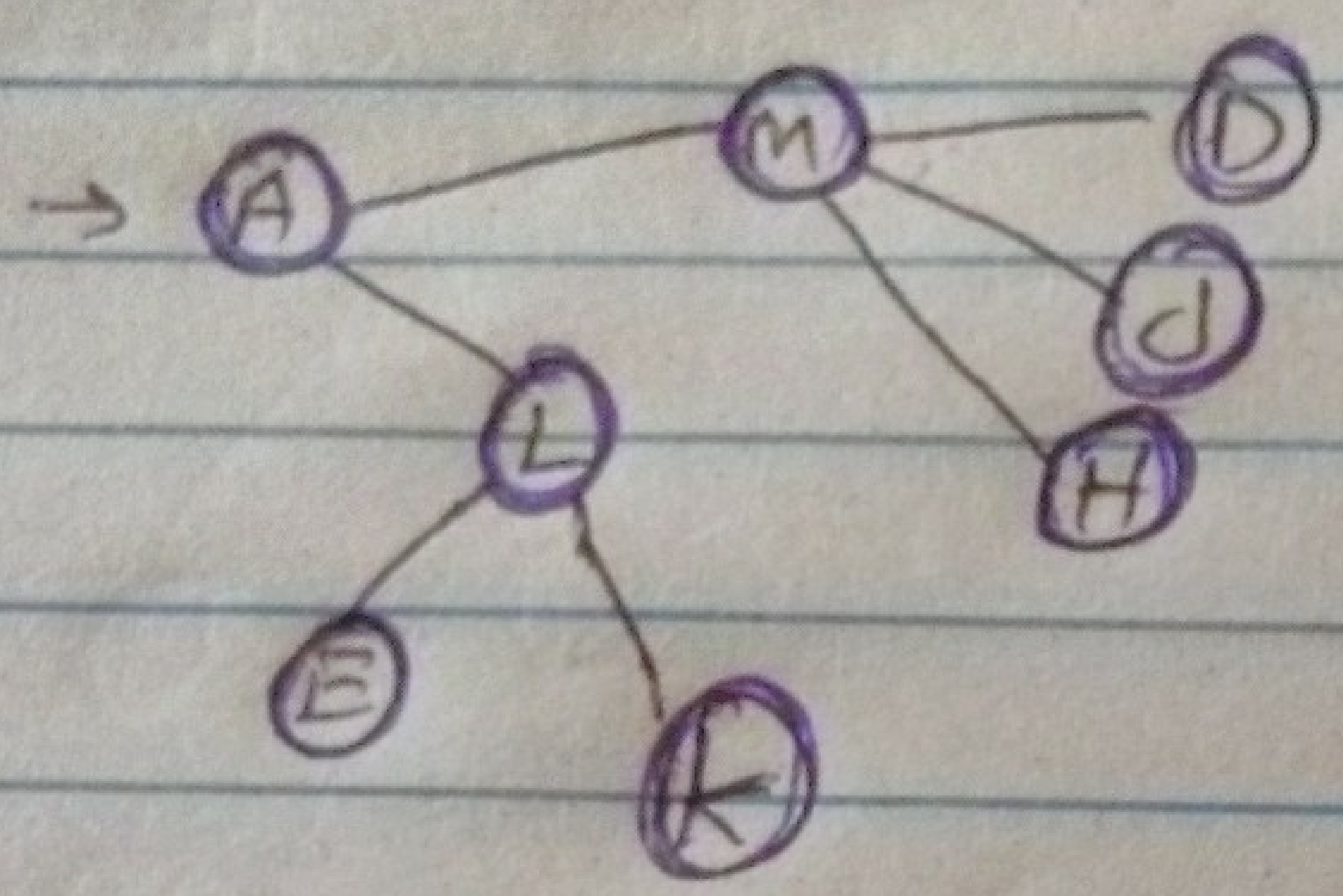
we get back to 'M'
Now we have push 'H' on top of the stack
Highlight this node 'H'.
Output Sequence: A, L, E, K, M, D, H

A L E K M D H

Name Asad Khan

ID 14944

page 7



(8) J is also leaf so we pop it from stack

we get back to 'M'

Now we push 'H' on top of the stack

Highlight this node 'H'.

Output Sequence

A, L, E, K, M, D, J, H.

Name

Asad Khan

ID

14944

page 08

Qno 3 How would be defining a Queue? Give some real life example of Queue?

Ans:- A Sequential list in which element are inserted from one end and are deleted / Retrieved from other end is known as Queue.

* The end from where we insert the elements is called Rear of the Queue.

* And the end from where we can Retrieve / Deleted the elements is called front of the Queue.

Real life Examples: A queue of people at ticket ~~first~~ window. The person who comes first gets the first. The person who is coming last is getting last.